

Claims

1. A method of generating signals in a drug delivering apparatus through which a person inhales to generate an inhaled airstream, comprising the steps of:
 - 5 detecting the commencement of inhalation;
signalling to the person to cease inhalation after a pre-set period of time has elapsed from the detection of the commencement of breathing; and
adjusting the pre-set period of time for subsequent inhalations depending on the time the person takes to stop inhaling after being signalled.
- 10 2. A method according to claim 1, wherein the pre-set period of time is increased if the time taken to stop inhaling exceeds a first threshold time.
3. A method according to claim 1 or 2, wherein the first pre-set period of time is
15 decreased if the time taken to stop inhaling is less than a second threshold time.
4. A method according to claim 3, wherein the first threshold time is greater than or equal to the second threshold time.
- 20 5. A method according to anyone of claims 2 to 4, wherein the first threshold time is about 0.5 seconds.
6. A method according to claims 5, wherein the first threshold time is in the range of 0.25 to 0.75 seconds.
- 25 7. A method according to claim 5, wherein the first threshold time is in the range of 0.35 to 0.65 seconds.

8. A method according to claim 5, wherein the first threshold time is in the range of 0.45 to 0.55 seconds.
9. A method according to any one of claims 3 to 8, wherein the second threshold
5 time is about 0.3 seconds.
10. A method according to claim 9, wherein the second threshold time is in the range of -0.2 to 0.5 seconds.
- 10 11. A method according to claim 9, wherein the second threshold time is in the range of 0 to 0.4 seconds.
12. A method according to claim 9, wherein the second threshold time is in the range of 0.25 to 0.35 seconds.
- 15 13. A method according to any one of the preceding claims further comprising the steps of: detecting the end of inhalation; and calculating the period of inhalation and the period of exhalation.
- 20 14. A method according to claim 13, further comprising the step of calculating the I:E ratio, and if it is greater than a third threshold, increasing the pre-set period of time.
15. A method according to claim 14, wherein the third threshold is about one.
- 25 16. A method according to any one of claims 13 to 15, further comprising the step of calculating the I:E ratio, and if it is less than a fourth threshold, decreasing the pre-set period of time.
17. A method according to claim 16, wherein the fourth threshold is about one third.

18. A method according to any one of the preceding claims further comprising the step of delivering an aerosolized substance into at least a part of the inhaled airstream. A method according to claim 18, further comprising the step of ceasing aerosol delivery
5 before signalling to the person to cease inhalation.

19. A method according to claim 19, wherein aerosol delivery is ceased at least one second before signalling to the person.

10 20. A method according to claim 19, wherein aerosol delivery is ceased at least two seconds before signalling to the person.

21. Drug delivery apparatus arranged to deliver aerosolized drug into an inhaled airstream of a person comprising:

15 an airflow sensor for detecting the inhaled airstream;
a signalling device arranged to give signals to the person; and
a controller arranged to control the operation of the signalling device on the basis of the inhaled airstream detected by the flow sensor, whereby the controller causes the signalling device to signal to the person to cease inhalation after a pre-set period of time
20 following the detection of inhalation; and adjusts the pre-set period of time for subsequent inhalations depending on the time the person takes to stop inhaling after being signalled.

22. An apparatus according to claim 22, further comprising an airflow regulator for
25 restricting the speed of the inhaled airstream through the apparatus.

23. An apparatus according to claim 22, further comprising an aerosol generator for aerosolizing the drug into the inhaled airstream.

24. An apparatus according to any one of claims 22 to 24, wherein the signalling device is any one or more of: an audio device, a visual device and a vibrator device.
25. An apparatus according to any one of claims 22 to 25, wherein the controller
5 includes a calculator arranged to calculate the pre-set period of time.
26. An apparatus according to any one of claims 22 to 26, wherein the controller is formed by a microprocessor.